GOVERNMENT OF INDIA.

REVENUE AND AGRICULTURAL DEPARTMENT.

WEATHER SUMMARY FOR NOVEMBER 1887.

During November the high pressure area, which appears over Northern India during October, becomes a more strongly marked and more permanent feature of the distribution, while at the same time the area of low average pressure, over the Bay, which is, perhaps, the most striking feature of the October distribution, moves southward towards the Equator and is followed over the Bay by a brisk barometric rise, an improvement in the weather and a cessation of the north-east monsoon rain-fall of the Carnatic. During the past November this course of events has been followed in a typical manner. On the first day of the month the mean pressure over the Punjab, the North-Western Provinces, Sind and Rajputana was about 30·000 inches and over Madras about 29·885 inches, while on the 30th November the mean pressure over the former region was about 30·170 inches and over the latter about 30·069 inches, showing a nearly equal rise over both regions. Similarly, on the 1st of November rain was reported at nearly all the Bay stations and as far north as Dacca and Silchar, while on the 30th the only rainfall reported was a slight shower at Colombo.

On the 1st of the month the cyclonic storm, which was noticed over the west of the Bay in last month's summary, was still shown off the Coromandel Coast, but it was fast filling up. It was, however, occasioning rather heavy rainfall over the whole of the Bay area, in Malabar, Ceylon and as far north as Calcutta, Dacca and Cachar. A large area of high pressure overlay the whole of Northern India and, except for the cyclonic circulation induced by the storm off the Coromandel coast, north-easterly and easterly winds prevailed almost everywhere. Over the Peninsula and Bengal the sky was heavily clouded. During the 2nd and 3rd conditions did not materially change. The depression over the Bay continued to fill up, but it left the weather in an unsettled state and rain fell generally around the Bay and over the south of the Peninsula. On the 4th the chart showed a feeble depression off the west coast of the Peninsula. This depression occasioned rain in Malabar and Bombay as far north as Goa and Belgaum, and as the weather remained unsettled over the Bay of Bengal rain was thus reported from both coasts and from the interior of the Peninsula. In Northern India pressure was high, the wind circulation normal and the weather fine. On the 5th the low pressure area off the west coast had travelled northward as far as Ratnagiri, while the attendant rainfall had advanced as far as Bombay and Poona. All over the west and interior of the Peninsula rain was consequently falling, but in the Bay region the weather had improved, the only stations recording rainfall being Diamond Island, Masulipatam, Vizagapatam, and Gopalpore. In Northern India there was no change. The chart of the 6th showed that the west coast depression had advanced to between Ratnagiri and Bombay, while the area of rainfall and unsettled conditions had spread northward and north-eastward, and now included in addition to the Peninsula, Khandesh, the Berars, the south of the Central Provinces and part of Central India. The wind had become very variable over Northern India, and indeed the weather over the greater part of the country had become more or less affected by the low pressure area in the west. On the 7th though the depression off the Bombay coast appeared to be filling up, the weather over a large part of India remained in an unsettled state. Rain was reported from the Peninsula, Khandesh, the Berars, the Central Provinces, and as far north as Jhansi, and the cloud proportion was high except at the extreme north-eastern and north-western stations. On the two following days, viz., the 8th and 9th conditions improved somewhat, the rainfall gradually fell off over the central parts of the country and became lighter over the Peninsula, while the distribution of pressure and the circulation of the winds became more such as is characteristic of the cold weather months. Between the 9th and 13th slight showers continued to fall over Central India, Khandesh and Guzerat as well as the south of the Peninsula, but by the 14th these unsettled conditions had disappeared, a large area of high pressure had been established over the central and north-western parts of the country, while relatively low pressures were reported from the south-west and south-east coasts of the Peninsula. On this day the weather was fine over by far the greater part of the country, and the only rainfall reported was from Ceylon and Diamond Island. From the 15th high pressures and fine, settled, weather prevailed throughout almost the whole of the Indian region, the actually highest readings being reported from the Central Provinces and slightly lower readings from the coasts of the Peninsula. All over Northern and Central India during this period the sky was almost cloudless. On the 18th the chart showed that a small area of deficient pressure was forming over the Bay. This depression occasioned a slight "backing" of the wind on the east coast of the Peninsula, and the re-appearance of cloudy and rainy weather in that region. This depression subsequently moved away southward, but it left conditions over the Peninsula in a somewhat unsettled state, and showers of rain fell there for many subsequent days. The area of rainfall, however, steadily contracted from day to day. On the 20th showers were reported from Madura northward as far as Secunderabad and Vizagapatam, on the 25th they did not extend beyond Cuddapah, and by the close of the month rain had deserted the Peninsula and was only reported from one station in Ceylon. Over Northern and Central India, between the 18th and the end of the month, the weather was remarkably settled and fine. A large area of high pressure laid steadily over that region accompanied by north-westerly winds down the Gangetic plain, northerly winds over Bengal, north-easterly to easterly winds over the central plateau, and clear or nearly clear weather throughout the whole region.

The variations of the different elements from the mean show that, with the exceptions of Rangoon Roorkee, Hyderabad and Kurnool, pressure has been above the average of the month throughout the whole of the Indian region. The excess has been greater in the north-west and centre than elsewhere, and as great on the hills as on the plains.

The departures of temperature from the normal average have been less regular than those of pressure. In Burma, Assam, Orissa, Behar, and one or two stations in the North-Western Provinces and the Panjab, and at several places on the Bombay coast and in Sind, the weather has been abnormally warm, but elsewhere the changes are very irregular. At the hill stations and in the Upper Indus Valley, temperature has been lower than usual. The only regions within which rain was entirely absent during the month were the Panjab, both east and west, Behar, Sind, and Cutch. In every other part of India some rain fell, though in the trans-Gangetic portions of the North-Western Provinces in North Bengal the amount received was insignificant. The total rainfall of the month was generally deficient over Upper India, from Behar westward to the Indus, over Lower Burma and over Ceylon. Elsewhere it was in excess of the average. The greatest excess (4 inches) occurred in the Berars and Khandesh, but in Lower Bengal, Chutia Nagpore, the Central Provinces, Rajputana, the Konkan and Malabar the month's fall was about twice the average.

The following table shows the amount of rain and the difference from the average, during the month of November 1887, *according to Districts as far as is indicated by the telegraphic reports* :—

Districts.	No. of Stations.	Average rainfall in November.	Difference from the average in November 1887.	Remarks.
Punjab, West	7	0·55	—0·55	
„ East	4	0·14	—0·14	
North-Western Provinces, Trans-Gangetic ..	9	0·15	—0·13	
„ „ Cis- „ ..	3	0·09	+0·06	
Behar	2	0·22	—0·22	
Northern Bengal	2	0·15	—0·18	
Assam, Cachar	3	0·79	+0·13	
Lower Bengal, Chutia Nagpore	7	0·62	+0·72	
Orissa, Northern Circars	6	3·06	+0·21	
Central Provinces, South	7	2·75	+2·42	
Berar, Khandesh	2	0·64	+4·07	
Rajputana, Central India, Saugor and Nerbudda.	8	0·15	+0·48	
Sind, Cutch	3	0·08	—0·68	
Guzerat	3	0·36	+0·28	
Konkan	4	0·68	+1·81	
Deccan, Hyderabad	5	0·87	+1·03	
Malabar	4	2·83	+2·17	
Mysore, Bellary	4	3·49	+1·26	
Carnatic	6	7·65	+1·11	
Lower Burma	6	3·64	—2·53	
Ceylon	2	12·11	—1·24	

SIMLA,
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